

What is claimed is:

1. A method for transferring an object to be processed in a processing apparatus, which has a number of process chambers including a specified process chamber for performing a process subject to contamination on the object; and a carrying mechanism having two picks, the method comprising:

a plurality of carrying steps of sequentially transferring the object from one chamber to another among the process chambers,

wherein one pick of the two picks is used in carrying steps till right before the object is loaded into the specified process chamber, and the other pick of the two picks is used in a carrying step of loading the object into the specified process chamber and any subsequent carrying step for the object.

2. The method of claim 1, further comprising a delivery step of conveying the object from the one pick to the other pick,

the delivery step including the steps of:

placing the object on a buffer mechanism by the one pick; and

moving the other pick to pick the object placed on the buffer mechanism.

3. A method for transferring an object to be processed in a vacuum processing apparatus, which has a number of process chambers including a specified process chamber for performing a process subject to contamination on the object; a common transfer chamber which is connected in common to the respective process chambers; a carrying mechanism having two picks and provided in the common transfer chamber; a buffer mechanism for temporarily supporting the object and provided in the common transfer chamber; and one or more transfer ports for loading or unloading the object into or from the common transfer chamber, the method comprising:

a plurality of carrying steps in which the object is sequentially transferred from one chamber to another among the process chambers, wherein one pick of the two picks is used in carrying steps till right before the object is loaded into the specified process chamber, and the other pick of the two picks is used in a carrying step of loading the object into the specified process chamber and any subsequent carrying step for the object; and

a delivery step of conveying the object from the one pick to the other pick by employing the buffer mechanism.

4. A method for transferring an object to be processed in a processing system having plural vacuum processing apparatuses connected via one or more pass portions, each

vacuum processing apparatus including a number of process chambers; a common transfer chamber connected in common to the respective process chambers; and a carrying mechanism having two picks and provided in the common transfer chamber, wherein one process chamber of the processing system is a specified process chamber which performs a process subject to contamination on an object to be processed; a buffer mechanism for temporarily supporting the object is provided in a common transfer chamber connected to the specified process chamber or in a pass portion communicating with the common transfer chamber; and one of common transfer chamber is provided with one or more transfer ports for loading or unloading the object thereinto or therefrom, the method comprising:

15 a plurality of carrying steps in which the object is sequentially transferred from one chamber to another among the process chambers, wherein one pick of the two picks is used in carrying steps till right before the object is loaded into the specified process chamber, and the other pick of the two picks is used in a carrying step of loading the object into the specified process chamber and any subsequent carrying steps for the object; and

20 a delivery step of conveying the object from said one pick to the other pick by employing the buffer mechanism.

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5. The method of claim 4, wherein at least two object

supporting mechanisms for supporting the object are provided in the pass portion;

the object is supported by one of the object supporting mechanisms before being loaded into the specified process chamber; and

the object is supported by another object supporting mechanism after being processed in the specified process chamber.

6. The method of claim 4 or 5, wherein the pass portion is provided with a gate valve for controlling common transfer chambers coupled via the pass portion to communicate with or to be isolated from each other; and

each of the process chambers is provided with a gate valve for controlling a common transfer chamber connected thereto to communicate therewith or to be isolated therefrom; and

wherein when the gate valve of the pass portion is closed, only one of the gate valves of process chambers connected to each common transfer chamber which is isolated by the pass portion is selectively opened; and

when the gate valve of the pass portion is opened, only one of the gate valves of process chambers connected to common transfer chambers which communicate with each other by the pass portion is selectively opened.

7. The method of any one of claims 3 to 6, wherein the delivery step includes the steps of:

placing the object on the buffer mechanism by said one pick; and

5 moving the other pick to pick the object placed on the buffer mechanism.

8. The method of any one of claims 3 to 6, wherein the number of transfer ports is two, one of the transfer ports
10 being used exclusively for loading and the other transfer port being used exclusively for unloading.

9. The method of claim 8, wherein load lock chambers, each having a vacuum state and an atmospheric pressure state
15 alternately therein, are respectively connected to the two transfer ports via gate valves; and

a loading transfer chamber provided with a loading carrying mechanism having two picks is connected in common to load lock chambers via gate valves; and

20 wherein one pick of the loading carrying mechanism is used when the object is loaded from the loading transfer chamber to the load lock chambers; and

the other pick of the loading carrying mechanism is used when the object is unloaded from the load lock chambers
25 to the loading transfer chamber.

10. The method of any one of claims 1 to 9, wherein a process of depositing a thin metal film on the object is carried out in the specific process chamber.